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ON INFUSION OF WILD CHERRY BARK.

By J. B. Moore.

The formula of the U. S. Pharmacopœia for the infusion of wild cherry bark affords an unsatisfactory preparation.

The infusion, to be an efficient remedy, should be carefully made, and should represent the tonic as well as the sedative properties of the bark: and, since water extracts but a meagre portion of the bitter tonic principle of the drug, the infusion as made by the officinal process can be said to faithfully represent only the sedative properties. Moreover, when made with water alone as the menstruum, the infusion is a very unstable preparation, liable to spoil, in warm weather especially, in a very short time.

Glycerin is one of the best solvents for the bitter principle of wild cherry bark that we have, and when associated with water forms a menstruum perfectly adapted for extracting the entire medicinal virtues of the bark; and it is with such a menstruum that I propose making the infusion, and would offer the following formula and process, which after repeated trials has proved perfectly satisfactory:

℞. Powd. Wild Cherry Bark, No. 60, ℥ss, troy,
Glycerin, f℥ij,
Water, temp. 86°,
Water, each a sufficient quantity.

Moisten the bark with six fluid-drachms of water, at the temperature of 86°. Allow the mixture to stand for two hours in an air-tight vessel, at about the same temperature. Then pack it firmly in

a glass percolator. Mix the glycerin with ten fluidounces of water at the temperature of 86°, and gradually pour the mixture upon the bark, and when it has all passed from the surface continue the percolation with water until one pint of infusion is obtained.

In the above formula I have refrained from mixing glycerin with that portion of the water with which the bark is moistened, lest it might possibly interfere with or retard its reaction upon the bark.

As prepared by the above formula, the infusion is much darker in color than that as made by the officinal process, and much more bitter; the taste of which, however, is modified and rendered more agreeable by the glycerin it contains. The hydrocyanic acid odor is also strongly marked in it.

I think that the formula for this infusion might be still further improved by doubling the strength of the infusion, that is, using one troyounce of bark to the pint of infusion instead of half a troyounce as is now employed. I can see no possible objection to such a change, but can see many reasons why it should be made. It would greatly lessen the bulk of the dose, which is a large draught for a delicate person to swallow. The dose may then be reduced from two or three fluidounces to two or three tablespoonfuls.

In the course of my experiments to test the relative merits of the above formula and process with those of the officinal, I made upon several occasions a sample of the infusion as directed in the above formula, also one by the same process, but doubling the quantity of the bark, and another strictly in accordance with the officinal formula.

The sample on each occasion made by the above formula kept, without apparent change in sensible properties, for about ten days, with the exception of very slight turbidity and a little deposit of resinous or other insoluble matter, which was of no consequence. The characteristic hydrocyanic acid odor, however, remained apparently undiminished for that period, after which I could perceive a gradual loss of this odor, with an increased cloudiness and deposit; while the sample made by the same formula, with double the proportion of the bark (one troyounce instead of half a troyounce to the pint), kept without visible change, beyond a slight cloudiness and a little deposit, for about sixteen days, retaining its characteristic odor and taste but very slightly diminished for that time. But the sample on each occasion, which was made in strict conformity to the officinal

formula, with water alone as the menstruum, exhibited in a very short time a cloudiness, which rapidly increased, and the hydrocyanic odor was entirely lost in four or five days, while the infusion became entirely spoiled and unfit for use in less than a week.

These samples were all kept in the same situation in my store room, at a temperature ranging from 60° to 70°. These results show that there can be no question about the advantages in the use of glycerin in the preparation of this infusion, and also illustrate the advantages of increasing the strength of the infusion, as it seems to give increased stability to the preparation.

The glycerin not only contributes to its preservation, but also forms a better and more potent menstruum for the solution of the virtues of the bark, and affords a much more active and efficient preparation. The sweet taste of the glycerin also serves to conceal in a measure the bitterness of the infusion, and renders it more agreeable to the taste. Glycerin itself, possessing alterative, nutrient and demulcent properties, is useful in almost all cases in which the infusion of wild cherry bark would be employed; while in no case can there be any possible objection to its use.

It is a fact well known to all observing pharmacists that the proportion of hydrocyanic acid in all preparations of wild cherry bark gradually diminishes with time, and sooner or later entirely disappears, especially if the medicine is exposed to the light.

This fact alone gives, I think, additional importance to the infusion as a therapeutic agent, which, when carefully and properly made, furnishes a preparation embodying all the medicinal virtues of the bark in a fresh or nascent state, and in an eligible form for administration; and, as the proportion of the menstruum to the bark is so large, it will always, with ordinary care, insure its perfect exhaustion of all that is medicinally desirable.

I am surprised that physicians do not more frequently avail themselves of the use of this preparation; I presume the cause of its being so seldom prescribed is owing to the liability of the officinal infusion to spoil quickly, and the prevailing impression of its inefficacy. If, however, physicians can have this preparation made so that it will keep, and retain its medicinal properties unimpaired for two or three weeks, and prepared in such a manner that it will fully represent the entire active properties of the bark, I have no doubt that it would become a more popular remedy.

I have directed in the above process a two hours' preliminary maceration, instead of an hour as in the officinal. This may, even with advantage, be prolonged to five or six hours, when circumstances will permit, so time will be given for the necessary reactions which develop the sedative properties of the bark to become more complete.

The temperature of the water with which the bark is moistened preparatory to maceration should never be below 86° to 90°, and the maceration should be conducted at about the same temperature, as this temperature serves to promote the reactions referred to above. Yet care must be exercised not to allow the temperature to much exceed that point, otherwise there will be more or less loss of hydrocyanic acid. Attention to this point is of like importance, also, in the manufacture of all preparations of wild cherry bark where it is desirable to secure its full sedative power.

Especially is this necessary in cold weather. In summer the water is usually warm enough, and the temperature of the atmosphere such as to render the resort to artificial warmth unnecessary.

Some pharmacists, when making the syrup of wild cherry bark, after moistening the bark with water place it in the cellar to macerate; but this should not be done, as most cellars are too cold at any season for this purpose. It is also necessary that the maceration be conducted in an air-tight vessel, otherwise the hydrocyanic acid will escape almost as fast as it is generated. There is another precaution, also, that it is well to observe in this matter, and that is to pack the bark rather firmly in the vessel in which it is macerated, as this will tend to confine the acid and prevent its waste.

There are many cases of disease in the treatment of which the physician may wish to combine the properties of tar with those of wild cherry bark; if so, an elegant and valuable combination of this kind may be formed in the following manner:

℞. Tar, pure, ... one pint,
Infusion Wild Cherry Bark, . . four pints.

To the infusion, in a suitable bottle, or other air-tight vessel, add the tar. Set it aside to macerate for two or three days. Stir the mixture well with a stick, and shake it vigorously frequently during the maceration. Then filter through paper.

The *stirring* directed in the preparation of this compound infusion is an important part of the process, as it breaks up the tar and thus

presents a larger surface of it to the action of the solvent, which enables the liquid to more thoroughly and more quickly exhaust the tar of all that is soluble in it; whereas, if the mixture is simply shaken the tar will often remain in an impermeable mass, the interior of which is entirely inaccessible to the menstruum. This same treatment could, I think, be adopted with advantage in making the officinal "Infusum Picis Liquidæ."

When prepared as above directed and filtered, this infusion is quite a handsome preparation, and to those who have not an aversion to the taste of tar it is not an unpleasant one.

Glycerin being a good solvent of the medicinal virtues of tar, this compound infusion possesses the properties of the latter in a high degree, and in my opinion it is superior medicinally to the "Wine of Tar," and may be substituted for it with advantage in almost all pectoral diseases.

It will be found an excellent remedy in chronic pectoral and bronchial affections, and may often be used also with good effects in the treatment of certain diseases of the kidneys and bladder. The physician may at pleasure combine with it any of the usual expectorant, diuretic, anodyne or diaphoretic medicines.

It may be administered in the dose of from one to two tablespoonfuls every two or three hours, as required.

This infusion is not so liable to spoil as the simple infusion of wild cherry bark. Being impregnated with the antiseptic properties of tar, it will keep for a long time unchanged, if kept in a cool, dark place.

In the late revised edition of the U. S. Pharmacopœia, I observe that the Committee of Revision have given some attention to the infusion of wild cherry bark, and have substituted a "fine powder" for the "moderately coarse" one employed in the edition of 1860. This was a judicious change, and I regret that they did not make the same alteration in the formula for the syrup of wild cherry bark. In fact, a "very fine" powder for that preparation would not be at all too fine; while a coarser powder than No. 60 will not yield a satisfactory syrup; for, no matter how firmly packed, the percolation, when a coarser powder than "No. 60" is used, proceeds too rapidly, and the bark is in consequence but imperfectly exhausted.

Philadelphia, March, 1873.

EXTRACTUM PRUNI VIRGINIANÆ FLUIDUM.

By Harry W. Porter.

Abstract from an Inaugural Essay.

The fluid extract of wild cherry made in accordance with the new Pharmacopœia, does not, I believe, represent the bark as fully as that made by the old plan. Percolation and evaporation being necessary in all cases, the objection to the old formula seems to apply to that part—a very essential one—where emulsion of almonds is directed to be added, and then strained and filtered out.

This objection I have attempted to overcome by eliminating an unnecessary ingredient which serves as an impediment, and by reducing the bulk of material in the operation for developing the latent hydrocyanic acid. This is accomplished by depriving the almonds of their fixed oil, which amounts to more than one-half their weight (54 per cent.), and of other matters insoluble in water, amounting in all to nearly three-fourths the weight of the almonds; or, in other words, by extracting from the almonds all that is requisite for developing the hydrocyanic acid represented by the amygdalin of the bark, namely, a nearly pure emulsin.

I prepare a smooth paste of almonds, not necessarily blanched, and mix with it, in the mortar in which it has been beaten, sufficient benzin to make a fluid mass, transfer to a long cylindrical percolator and treat with benzin until the drops falling from the percolator contain no fixed oil.

The powder remaining in the percolator is then turned out, and laid by to dry in a warm place, where the temperature does not exceed 100°, until the odor of benzin has entirely disappeared. One troy-ounce of almonds, when treated in this manner, yielded 160 grains.

I next treat the powder with water by percolation. It is soon exhausted, as the drops from the percolator soon fail to give a precipitate when added to alcohol. A dense solution results, which consists largely of emulsin, and contains small proportions of gum and sugar. This dense aqueous solution is then added to some properly concentrated fluid extract of wild cherry, and put aside for twenty-four hours. It is then filtered, and finally sugar or glycerin added.

This process may seem more troublesome or difficult than the one of the old Pharmacopœia, but such has not been my experience.

The preparation of the emulsin solution can be effected while the

percolation of the bark and the evaporation of the tincture is going on, and the solution can be added as soon as the reduction of the tincture is accomplished. The preparation of the emulsin is an easy one, the greatest care to be observed is in the reduction of the almonds to a smooth paste, so that there may be no large pieces left to retain any oil, which might interfere with the subsequent aqueous solution.

The final filtration is easily made, the small portions of emulsin and the gum which are precipitated by the tannin of the fluid extract do not clog the filter in the least appreciable degree. The use of benzin instead of ether is simply a matter of economy. It serves the purpose as well if of good quality, and is invariably kept in the shops.

The formula I have worked by is as follows:

Take of wild cherry bark, in fine powder, sixteen troy-ounces; glycerin, eight fluid-ounces; stronger alcohol and water, of each, a sufficient quantity; sweet almonds, two troy-ounces; benzin, a sufficient quantity; moisten the bark with eight fluid-ounces of alcohol, and pack carefully in a percolator; add alcohol until three pints of tincture is obtained, from this distil two pints and a half of alcohol, mix the residue with twenty fluid-ounces of water, evaporate to twenty-two fluid-ounces, pour into a bottle, and add the solution of emulsin prepared from two troy-ounces of almonds by the process above described. Allow the mixture to stand for twenty-four hours, filter through paper, and add the glycerin.

IS THERE A THIRD ALKALOID IN HYDRASTIS CANADENSIS?

By A. K. Hale.

After removing the berberina from the watery percolate as a hydrochlorate, and precipitating hydrastia by careful neutralization with ammonia, I find that excess of ammonia throws down another precipitate, more resembling berberina than hydrastia, but decidedly different from the former. My investigation upon this question has been as follows, and I should be very glad to receive further information or explanation of the results.

I treated the powdered root of *Hydrastis Canadensis* in a percolator with distilled water until the strength seemed to be exhausted, then I proceeded to remove the berberina as a hydrochlorate by the addition of hydrochloric acid. Removing this precipitate of hydrochlorate of berberina by filtration, I then proceeded to obtain the

hydrastia by adding water of ammonia (10 per cent.), until a precipitate ceased to be thrown down. This precipitate I separated by filtration, and dissolved in, and crystallized from, alcohol, when, instead of hydrastia, as the books described it, I found that the characteristic prisms of hydrastia were colored by and intimately mixed with a yellow powder, which I supposed to be berberina that had not been thrown down as a hydrochlorate.

Being thus a little disconcerted at not obtaining the result I hoped for, I made another percolate of the drug, and to the mother liquor of berberina I carefully added water of ammonia (10 per cent.) to the neutral point. The precipitate thus obtained I dissolved in and crystallized from alcohol, which furnished beautiful and well defined prismatic crystals of hydrastia, free from yellow coloring matter at all resembling berberina.

To the neutral mother liquor of hydrastia I now added water of ammonia (10 per cent.) to a strong alkaline reaction. This gave me a yellow precipitate, which I separated, and found to correspond with the yellow powder above mentioned, as accompanying the first attempt to obtain hydrastia, and to be darker in color than berberina and to possess the following reactions. When dissolved in alcohol it has a neutral reaction with a solution of litmus.

Taking corresponding proportions of berberina (designated by "*a*") and the new substance resembling berberina (designated by "*b*"), and applying a few reagents, the following results were obtained:

In cold nitric acid "*b*" is the least soluble, and both form red solutions when the acid is heated. In water, at 60° F., "*b*" is the least soluble; both dissolve in hot water. In hot sulphuric acid, "*a*" gives a yellow solution; "*b*," a reddish-brown solution. In cold solution of caustic potassa, "*a*" is the most soluble. When heated in hydrochloric acid, "*a*" furnishes the darker solution; and when the hot hydrochloric acid solutions are allowed to cool, "*a*" crystallizes while the solution is still warm, giving an abundant crop of bright yellow needles, while "*b*" remains in solution until nearly or quite cold, and then only crystallizes sparingly in darker and larger needles than "*a*." Dissolved in warm water and tested with iodohydrargyrate of potassium, "*a*" gives an abundant yellow precipitate, while the precipitate furnished by "*b*" is less abundant and of a very light yellow, almost straw-color.

Fearing "*b*" might be a modification of "*a*" by the action of am-

monia, I subjected "*a*" to the influence of ammonia for several days, but observed no change. Obtained as above described, "*b*" exists in *Hydrastis Canadensis* in less quantity than hydrastia.

The ultimate contents of "*b*" I have not yet had time to determine.

Ann Arbor, Mich., May 10th, 1873.

IODIDE AND BROMIDE OF AMMONIUM.

By Charles Rice.

The process adopted in the last Pharmacopœia for the preparation of iodide of ammonium was published several years ago in the Proceedings of the American Pharmaceutical Association (1866), and in the American Journal of Pharmacy (1867), and no doubt yields an excellent product, although the latter is contaminated with a minute proportion of sulphate of potassa. But the quantities of iodide of potassium and of sulphate of ammonia, which the Pharmacopœia directs to be used, are not correct. Four troy-ounces of iodide of potassium, combining in equivalent proportion with sulphate of ammonia—supposing the latter to contain no water of crystallization—require more than one troy-ounce of the latter, as the following diagram shows:

$KI\ (166) + NH_4O,SO_3(66) = KO,SO_3(87) + NH_4I\ (145)$, hence 1920 grs. of iodide of potassium require for complete decomposition 764 grs. of sulphate of ammonia. Now, since it is safer to employ an excess of sulphate of ammonia than of iodide of potassium, the quantity of the former should not be less than 867 grains, which would make allowance for an additional equivalent of water in the sulphate, and any excess of the latter would be thrown down along with sulphate of potassa by alcohol.

As regards the process for preparing bromide of ammonium, I almost regret that the Committee did not adopt the same plan here as in the case of the iodide. It is true that the product will not contain any foreign salt, such as sulphate, and that the only drawback in this process is the not unfrequent elimination of bromine and hydrobromic acid; but I am inclined to think the advantage is on the side of the other process, which yields a product, never exhibiting any signs of decomposition, although containing a very small amount of sulphate of potassa, and being all that can be desired by the photographer as well as by the pharmacist. I have prepared several

hundred pounds during a number of years past by the sulphate of ammonia process, and have never found the least trace of decomposition, while the same salt prepared by the other (now officinal) process has not unfrequently liberated free bromine and turned acid. It is a curious fact that iodides and bromides, especially the former, prepared by the intervention of iron, are rather prone to develop in the course of time, free hydracids and halogens, unless the salt has been exposed to a high degree of temperature, which is, of course, inadmissible in the case of ammonium salts. One explanation of this fact is suggested by the results observed in following another well known process, formerly much used, and even yet practised, in the preparation of iodides and bromides, namely, to convert the I and Br into HI and HBr by means of HS, either in the presence of the base or its carbonate, or previous to coming in contact therewith. This process yields a product, in the case of I, of very feeble stability, and obstinately retaining traces of sulphur, which it is next to impossible to get rid of. In the case of bromine, the durability is longer, but decomposition frequently ensues after some time. The presence of sulphur, even in most minute proportions, appears to lead to such a result, and traces of it, present in the iron employed, are, I believe, the cause of like effects in the first-mentioned process. Photographers can make no use whatever of such iodides and bromides; the faint trace of sulphur still remaining produces at once a peculiar fogginess and spots upon the film, and there is scarcely a more sensitive test for the detection of minute traces of sulphur than the silvered collodion-film.

I annex a working formula for bromide of ammonium.

Dissolve 4 troy-ounces of bromide of potassium in 6 fluid-ounces of boiling water, and 3 troy-ounces of sulphate of ammonia in 4½ fluid-ounces of boiling water. Mix the solutions while hot, and allow to cool. Then add 1½ ounces of alcohol, and set it aside for twenty-four hours. Pour off the clear liquid, wash the precipitate with a small quantity of a mixture of 1 part alcohol and 4 parts water, and concentrate to the point of crystallization. In working upon a larger scale, it is advisable to redissolve the first crop of crystals of bromide of ammonium in a small quantity of very cold water, and allowing as short a time as possible for the solution. The greater part of the accompanying sulphate of potassa, which has crystallized out at the same time, will remain undissolved at first, and may be removed,

when the solution may be again concentrated, until a pellicle forms. The successive crops of crystals are first drained, then dried on blotting paper laid upon porous bricks with a very gentle heat.

New York, May 13, 1873.

ON THE YELLOW COLOR OF THE BARK OF PRINOS VERTICILLATA.

By William J. Lerch.

From the author's inaugural essay we extract the following experiments, undertaken with the view of ascertaining whether the yellow color of the bark is due to berberina; the probability of which had been suggested by Professor Maisch.

A decoction was made by boiling sixteen troy ounces of the bark, coarsely powdered, repeatedly with water; on mixing the solutions and filtering I obtained a dark yellow colored liquid, with a strong odor and taste of the drug, and very prone to froth. This decoction I evaporated to the consistence of an extract, which I digested in hot alcohol in the proportion of half a pint to the pound of bark, and again filtered. To this I added one-fourth of its bulk of water and recovered most of the alcohol by distillation; to the remaining liquid, while still hot, I added sulphuric acid in slight excess and set it aside for several days, hoping to obtain crystals of sulphate of berberina, but failed.

I then repeated the above experiment twice, using muriatic acid and nitric successively, but with similar results.

I then exhausted a portion of the bark by boiling it with hydrate of lime and water several times, mixed the decoctions filtered, precipitated the lime with sulphate of zinc and again filtered, evaporated this to the consistence of an extract, treated it with alcohol, filtered, evaporated the alcoholic solution, treated this with boiling water; on cooling I failed to get any crystals. I then added to this sulphuric acid, but with the same result.

I then exhausted another portion of bark with alcohol, distilled off most of the alcohol, evaporated the residue to dryness, treated this with boiling water, filtered, and added muriatic acid in slight excess, and set aside as before, but again failed to get any crystals.

The above experiments were all repeated several times, with similar results. The bark used was a very fine article, collected late in the fall, and of the fourth year's growth.

ON THE TASTELESS IODIDE AND CHLORIDE OF IRON.*

NEW YORK, April 18th, 1873.

Editor American Journal of Pharmacy:

Dear Sir:—If you ask me what kind of combination citrate of potassa can form with sesqui-iodide of iron, I will answer frankly that I cannot say with certitude; it is probably a combination similar to the medicinal pyrophosphate of iron or the green scales of sesqui-phosphate of iron and citrate of potassa I sent you last year. That they form a combination does not admit of any doubt, for the physical and chemical changes are such as would not be presented by a simple mixture. But, be the combination what it may, I believe the new salt represents exactly the results of what happens in the stomach when protoiodide of iron is administered. Protoiodide of iron cannot be absorbed as it is, for no protosalt of iron is ever found in the animal system; when ingested into the stomach it must change in whole or in part into sesqui-iodide, which, combining with the citrates, tartrates, oxalates, malates or lactates, etc., always present in human food, becomes ready for absorption. The balance of the iodide of iron is probably eliminated, like all unabsorbed substances (I leave acetates purposely out of the list, for acetic acid is monobasic, and this class of compounds seem to be limited to the salts of polybasic vegetable acids). This explains also why protoiodide of iron is best administered just before a meal; for the food supplies the stomach with both the oxygen and the vegetable salts necessary for the digestion of the ferrous compound.

The new iodide of iron, according to this theory, ought to be more effective and more uniformly so than the protoiodide, for it comes all ready for absorption, while the old salt, being absorbed only with the help of other variable substances, will vary more or less in its effects, besides interfering with the natural functions of the stomach.

Experiments made by Dr. Lalanne, of this city, have confirmed this view and have served to determine the medicinal dose of the new combination. This was necessary on account of the entirely different character of the new and the old form of iodide of iron. It has been found that from one to three grains of the salt have the same medicinal effect as an average dose of the U. S. Pharmacopœia syrup of

* The above portion of a private letter touches upon several interesting and important points, and is published with the consent of the author upon the request of the Editor of the *American Journal of Pharmacy*.

protoiodide. As the new salt contains about 42 per cent. of iodine and 9 per cent. of metallic iron, this shows that its effects are proportionally greater than those obtained from the same substances administered as protoiodide.

Its medical properties are, otherwise, precisely the same as those of the officinal iodide of iron, and its administration has always been followed by the most gratifying results; but it is not my province to speak of this, except to mention that it has found great favor among children and female patients, on account of its relatively pleasant taste and because it never blackens their teeth.

Much of this applies also to the tasteless tincture of muriate of iron. The officinal tincture is still more injurious to the teeth than the syrup of protoiodide of iron; it not merely blackens them, but destroys them when used long enough. I have heard some dentists speak very strongly on the subject. The tincture I send you contains the same proportion of iron as the tinct. ferri sesquichloridi, U. S. P. I left the dose the same as that of the officinal preparation, but I have no doubt that experiments now being made will warrant a reduction in the dose.

In regard to the quantity of citric acid needed for one fluid-ounce of tincture of muriate of iron, I have found from recent experiments that it requires from 90 to 95 grains of citric acid neutralized by 180 to 190 grains of crystallized carbonate of soda to transform that quantity into the tasteless compound. It seems singular at first sight that the more acid is the solution of muriate of iron, the more citric acid it requires; but it is easy to account for that apparent anomaly: for, any excess of muriatic acid decomposing a corresponding quantity of citrate of soda, more of that salt is needed in proportion to the free acid present.

J. Creuse.

New York, May 20, 1873.

ON THE FLOWERS OF SOLIDAGO BICOLOR.

By Adam Conrath.

From an Inaugural Essay.

The flowers which were used for the experiments hereafter to be noticed were collected in the vicinity of Germantown in the forepart

of September. After being carefully dried in the shade they possessed an agreeable aromatic odor, and a slight bitterish taste.

An infusion made with boiling water was destitute of any bitterness, and upon examination of the flowers so extracted, they were found to be still bitter. A small portion was next treated with diluted alcohol, which proved to extract all its sensible properties.

Three tinctures were next made; one with ether, one with alcohol and one with diluted alcohol. On evaporating the diluted alcohol tincture to the consistency of a solid extract, it was found to weigh 17 per cent. of the weight of flowers. The alcoholic and ethereal tinctures yielded decidedly less extract, whereupon the flowers extracted with these menstrua were subjected to percolation with cold water, which, upon evaporation to the consistency of a solid extract, yielded from flowers previously extracted with ether 13·8 per cent. of their original weight, while those previously extracted with alcohol yielded 12 per cent. These aqueous extracts were very tenacious, of a honey-like odor and peculiar malt-like taste. Solutions of the aqueous extracts gave precipitates with gelatin, basic and neutral acetate of lead, a black coloration with ferric salts, and reduced the cupric oxide in Trommer's test, indicating the presence of glucose and tannin.

I endeavored to purify the grape sugar as much as possible by repeatedly dissolving in alcohol and precipitating with ether, and after this boiling with animal charcoal; it, however, retained a light brown color.

The extract obtained from the diluted alcohol tincture had a bitter and somewhat acrid taste. It was treated with hot water acidulated with muriatic acid and filtered, leaving a resinous residue. The filtrate was supersaturated with magnesia, boiled and set aside for twenty-four hours. It was then filtered, the undissolved residue washed with cold water and dried. The dry residue, digested in hot alcohol, brought on a filter and washed with the same menstruum, yielded a clear filtrate having no marked taste. After standing several days no change occurred. It was now evaporated to a small bulk, when it assumed a yellowish tint, and upon standing became turbid. Lastly, it was carefully evaporated to dryness on a water-bath, leaving a resin-like film on the bottom of the beaker. Cold water partially dissolved this, while acidulated water had but little effect upon the residue.

Both these solutions were tested with iodohydrargyrate of potassium, after being duly acidulated with HCl, without any immediate effect; on standing, however, a resinous precipitate occurred, the liquid at the same time being decolorized. Judging from this behavior, I came to the conclusion that there was no alkaloid present, and the substance precipitated by the magnesia and subsequently dissolved by the alcohol was merely resin.

The alcoholic tincture was next evaporated to a small bulk after having recovered most of the alcohol by distillation. On cooling, the resinous portion separated from the aqueous liquid. More water was now added, and the whole brought on a filter and washed. The residue consisted of a resin partially soluble in ether; the greater part was little affected by carbon bisulphide, but was readily soluble in alcohol. This latter portion amounted to 2·13 per cent. of flowers employed. The portion soluble in ether was only one-fifth of this, making the amount of resin contained in the flowers and soluble in ether and alcohol 2·56 per cent.

To this resin is due what bitterness the flowers possess. When isolated it has a sharp, bitter and acrid taste, and a peculiar disagreeable odor. The ethereal tincture yielded on evaporation mostly chlorophyll.

The flowers yielded on distillation a milky distillate, which, on standing, separated globules of oil, the quantity, however, being very small. The distillate was successively treated with ether in order to dissolve out the oil, and the solution so obtained left to spontaneous evaporation. A minute portion of oil was thus obtained.

It was of a yellow color, lighter than water, and had a pleasant aromatic odor. The quantity was so small that further experiments could not be made with it. In regard to its odor, I would state that it had no resemblance to any of the volatile oils known to me and generally kept in drug stores.

ON THE ROOT OF EUPHORBIA IPECACUANHA.

By Christopher Petzelt.

Abstract from an Inaugural Essay.

The root, which is the officinal portion, is, according to Dr. Barton, equally efficacious at whatever period collected.

The root used in the following experiments was gathered by me on the third of August, in the vicinity of Camden, N. J.

It was first reduced to powder, this macerated with ether for six days, then transferred to a percolator and completely exhausted with ether; this percolate was set aside for future experiments. The residue was transferred to a capsule, and set in a warm place to facilitate the evaporation of the remaining ether.

This residue was macerated with 95 per cent. alcohol for four days, then in a percolator exhausted with alcohol, the percolate set aside, the residue placed in an evaporating-dish, and by means of a sand-bath the remaining alcohol driven off.

The powdered root which had been completely extracted by ether and alcohol was digested in water, acidulated with hydrochloric acid, at a temperature of eighty degrees, for eight days. It was then strained, filtered, and the filtrate set aside for future investigation.

Experiment 1. The clear ethereal tincture was allowed to evaporate spontaneously. A soft yellow mass was left behind, which was dissolved in benzin, allowed to evaporate spontaneously, and found to consist of wax and fixed oil.

Experiment 2. The clear alcoholic tincture was evaporated by a water-bath to a small bulk, set aside for three days, but no change taking place in its appearance, it was evaporated by a steam bath. A dark-brown soft resinous mass resulted, the taste of which is at first feeble, but when kept on the tongue for a short time, or brought in contact with the palate, has a nauseous and very pungent taste. When a half grain of this resinous matter was swallowed it acted as a cathartic, producing watery stools; in doses of $1\frac{1}{2}$ or 2 grains it produced nausea and vomiting.

It appears, according to a statement of the late Dr. Hewson, of Philadelphia, that this emetic was the subject of an inaugural essay by Dr. Royal, and that experiments conducted with it among the convicts in the Walnut Street Prison proved it to be advantageously available for all the purposes of an emetic.

Experiment 3. This resinous matter is insoluble in ether and benzin. When treated with acidulated water until completely exhausted, the solution gave no precipitate with iodohydrargyrate of potassium or tannin. When redissolved in alcohol it is copiously precipitated on addition of a solution of subacetate of lead.

Experiment 4. The acidulated aqueous extract of the root, previously exhausted by ether and alcohol, contained salts, among them sulphate of calcium.

Experiment 5. A portion of the root was boiled in water, and the decoction strained, being too thick and gummy to filter through paper. It afforded no precipitate with gelatin, was colored intensely blue by iodine, was not affected by sesquichloride of iron, but copiously precipitated by subacetate of lead.

Experiment 6. A decoction of the root contains glucose, as it readily reduces oxide of copper in Trommer's test.

My experiments indicate that the emetic and cathartic properties of the root of *Euphorbia ipecacuanha* are solely due to its resin.

This resin may be prepared by reducing a given quantity of the root to a moderately fine powder, and exhausting it in the usual manner with alcohol, distilling off this menstruum, adding the residue to water, washing and drying the precipitate, which is soft and of a yellowish color, partly soluble in ether; and the residue, when dissolved in the officinal solution of potassa, is, like the resin of jalap, not precipitated on the addition of dilute muriatic acid in excess.

The constituents found in the root of *Euphorbia ipecacuanha* are resin, fixed oil, wax, starch, glucose and inorganic salts.

SUPPOSITORIES.

By Wm. B. Addington, Norfolk, Va.

As summer is now approaching, and suppositories seem to be more used then, I will give the public the benefit of my manipulation, which I think will set at rest this vexing subject, and save the breaking of knuckles and the third commandment in future. My improvement consists simply in lining each half of the moulds with tinfoil. Get the full impression of the mould in the foil by means of a smooth stick the shape of the mould, then close the moulds; this will line the moulds smoothly. The materials are then prepared and melted in the manner directed by the U. S. Pharmacopœia, and poured into the tinfoil-lined moulds. In a few minutes the suppositories are solid, and the foil is removed without the least trouble. I do not think tinfoil is incompatible with the substances generally prescribed in suppository form. I think those who try this process will admit its advantage over those in use.

SOLUTION OF ISINGLASS IN WATER.

By C. Carroll Meyer.

From an Inaugural Essay.

One hundred grains each of the following kinds, American ribbon, American sheet, Russian and Prussian(?) isinglass were treated separately, first with f℥viii of water to soften, then f℥viii more of water were added and boiled until all soluble matter was extracted, then filtered, and the following table will show the solubility of the different kinds experimented with:

Isinglass.	Quantity used.	Soluble.	Insoluble.
American strip, .	100 grs.	70 grs.	30 grs.
" sheet, .	100 "	82 "	18 "
Russian, . .	100 "	88 "	12 "
Prussian, . .	100 "	80 "	20 "

From the foregoing experiments it will be seen that the Russian is the most soluble and the American strip the least soluble.

The bladder of a hake fish, weighing ℥xv, was washed with water to remove salt, and boiled with sufficient water until all soluble matter was obtained, then filtered, and found to contain ℥i of insoluble matter.

As aqueous solutions are prone to decompose, experiments were made to see if anything would arrest decomposition, and glycerin was found to answer very well in the proportion of one part glycerin to fifteen parts solution of isinglass. Solutions to which glycerin was added kept sweet and were quite palatable, while those to which no glycerin had been added soon decomposed, and became quite offensive to both taste and smell.

AN ADULTERATION OF CREAM OF TARTAR.

By George W. Kennedy.

A sample of cream of tartar was handed me by a merchant of our town, with the request that I should examine it and give my opinion as to its purity. I tasted it and at once discovered that it was an adulterated article. The taste was decidedly acid and astringent; in appearance it was rather lumpy, resembling cream of tartar that had

been wet and dried, and in color yellowish white. I treated it with ammonia, and found a large per cent. was insoluble. This ammoniacal solution was treated with chloride of barium, whereby a precipitate was obtained which was not entirely soluble in boiling nitric acid; the insoluble portion contained sulphuric acid, which no doubt had been united with aluminum, in the form of common alum.

The insoluble portion of treatment No. 1 was next treated with acetic acid, which dissolved part of the deposit. Hydrochloric acid was then added to the acetic solution, which made a clear solution. Acetate of sodium was added to get rid of the hydrochloric acid and replace it by free acetic acid. This acetic solution was treated with oxalate of ammonium, yielding a precipitate of oxalate of calcium, which was insoluble in acetic acid, but readily soluble in hydrochloric acid; a second portion of the acetic acid solution was acted on with ammonia, which caused a gelatinous white precipitate, proving the presence of aluminum. The residue left after treatment with ammonia and acetic acid, was treated with hydrochloric acid, results in solution of chloride of aluminum and tartrate of calcium, with a small residue. This residue was treated with tincture of iodine, which instantly produced a blue color characteristic of iodide of amylum, and by drying and burning, a mere trace of ash was left.

I might state here that the original cream of tartar, when treated with carbonate of potassium, evolved ammonia, recognized by its odor, also by browning turmeric proper, and giving white clouds with acetic acid. From the above process adopted, the following is the result:—

I. Treatment with ammonia:—

1. Bitartrate of potassium is dissolved; also sulphuric acid (of alum), removed as sulphate of ammonium.
2. Precipitate contains starch, tartrate of calcium, and hydrate of aluminum.

II. Treatment of 2 with acetic acid:—

3. Solution containing aluminum and tartrate of calcium.
4. Residue: starch, tart. of calcium and hydrate of aluminum.

III. Treatment of 4 with HCl., results—

5. In solution all chloride of aluminum and tartrate of calcium.
6. Residue: starch.

IV. Addition of acetate of sodium to 5:—

7. The solution remains clear, but is precipitated by ammonia,

and by oxalate of ammonium—this proving it to be identical with No. 3.

The cream of tartar was adulterated with about five to six per cent. of tartrate of calcium, eight per cent. sulphate of aluminum and ammonium, and two per cent. of starch.

Pottsville, Pa., April, 1873.

ON NON-GELATINIZING TINCTURE OF KINO.

Editor American Journal of Pharmacy:

The gelatinization of tincture of kino is a universal annoyance among pharmacists, and to make this tincture so that it would not lose its astringent properties, or, on long standing, gelatinize, is quite a desideratum. I here supply you with a formula that has been well tried and has proven good.

Take of

Kino in moderately coarse powder,	
Dry sand, ...	*aa* ℥iss.
Carbonate magnesia, ...	℥j.

Rub in a mortar and saturate with diluted alcohol for one hour; then percolate by pouring one and a half pints diluted alcohol on the mass; when one pint of tincture is obtained, filter and cork tightly.

L. Myers Connor.

Dallas, Texas, May, 1873.

[Note by the Editor.—It is possible that the pectinacious matter is entirely removed by using carbonate of magnesium, as suggested by our correspondent; but is the kinotannic acid not likewise removed by the same agent, either wholly or in part? At a boiling temperature, at least, according to Gerding, the whole of this tannin is precipitated by carbonate of magnesium, while the liquid still retains a deep red color.]

SELECTED FORMULAS FROM PHARMACOPŒA GERMANICA.

By the Editor.

(Continued from page 221 of last number.)

Sapo terebinthinatus, s. Balsamum vitæ externum. Powdered Castile soap, oil of turpentine, of each 6 p.; purified carbonate of potassium, 1 part. Beat them together into a uniform mass of the consistence of an ointment.

Serum Lactis (dulce). The whey obtained by warming a mixture of 200 parts of fresh milk and 1 p. liquid rennet to 35° or 40° C., and straining.

Serum Lactis acidum. 100 parts milk and 1 part cream of tartar heated to boiling, and strained.

Serum Lactis aluminatum and *tamarindinatum* are made in the same manner, substituting for the cream of tartar 1 part of alum, or 4 parts of tamarinds.

Sinapismus. Equal parts of water and ground black mustard seed.

Species aromaticæ. Two parts each of peppermint, rosemary, wild thyme, marjoram and lavender flowers, and one part each of cloves and cubebs are separately cut or bruised, freed from the fine powder, and mixed.

Species ad decoctum Lignorum. Guaiacum, 4 parts; burdock, thorny rest harrow root (*Ononis spinosa*) of each 2 parts; Russian liquorice root, sassafras root, of each 1 part.

Species emollientes. Marshmallow leaves, common mallow leaves, melilot, German chamomile flowers, flaxseed, all in coarse powder, equal parts.

Species ad gargarisma. Marshmallow leaves, common mallow leaves, elder flowers, equal parts.

Species laxantes St. Germain. 16 parts of Alexandria senna, previously exhausted with four times their weight of alcohol; 10 parts of elder flowers; 5 parts each of fennel and anise; when dispensing, add to this 3 parts of cream of tartar.

Species pectorales s. Spec. ad infusum pectorale. Pectoral tea, breast tea. Marshmallow root, 8 p.; Russian liquorice root, 3 p.; orris root, 1 p.; coltsfoot leaves, 4 p.; mullein flowers, 2 p.; star-anise, 2 p.

Species pectorales cum fructibus. 16 parts of breast tea; 6 p. St. John's bread; 4 p. pearl barley and 3 parts of figs.

Spiritus æthereus. Hoffmann's anodyne differs from that of the U. S. Pharmacopœia mainly in leaving out the heavy oil of wine; it is simply a mixture of 1 part of ether and 3 parts of alcohol.

Spiritus Ætheris chlorati, s. Salis dulcis, s. muriatico-æthereus. 6

parts of crude muriatic acid and 24 parts of alcohol are mixed in a large retort with sufficient black oxide of manganese in small pieces, and 25 parts obtained by distillation. The distillate is rectified over burned lime until 21 parts have been obtained. Spec. grav. 0·838 to 0·842.

Spiritus Angelicæ compositus, s. Spir. theriacalis. 16 parts angelica root; 4 p. valerian and 4 p. juniper berries are macerated for twenty-four hours in 75 p. alcohol and 125 p. water; then distil 100 parts and dissolve in the distillate 2 parts of camphor.

Spiritus camphoratus is weaker in alcohol and camphor than the corresponding preparation of the U. S. Pharmacopœia; the proportions are camphor, 1 p.; alcohol, 7 p.; distilled water, 2 parts.

Spiritus Cochleariæ. 8 p. fresh flowering scurvy grass; 3 p. alcohol and 3 p. water; distil 4 parts.

Spiritus Formicarum. 10 p. recently collected ants; 15 p. each of alcohol and water; macerate for two days and distil 20 parts.

Spiritus Juniperi. 5 parts bruised juniper berries; 15 p. each of alcohol and water; macerate for twenty-four hours and distil 20 parts.

By the same proportions and process are prepared *Spiritus Lavandulæ, Spir. Rosmarini* (*s. Anthos*) and *Spir. Serpylli.*

Spiritus Melissæ compositus. Lemon balm, 14 p.; lemon peel, 12 p.; coriander and nutmeg, of each, 6 p.; cinnamon and cloves, each 3 p.; alcohol, 150 p.; water, 250 p.; distil 200 parts.

Spiritus Menthæ crispæ (and *M. piperitæ*) *Anglicus.* 1 p. of the volatile oil dissolved in 9 parts of alcohol. These are of the same strength as the spirit of peppermint of the *Brit. Pharm.*, 1864; that of the *Brit. Pharm.* of 1867 is one-fifth, and that of the U. S. Pharmacopœia about two-thirds the strength.

Spiritus saponatus. Castile soap, 1 p.; alcohol, 3 p.; rose water, 2 parts. Dissolve.

Succus liquiritiæ depuratus, s. Extr. Glycyrrhizæ depuratum. Liquorice and washed straw are packed in alternate layers into a suitable vessel, cold water is added, and after thirty-six hours drawn off. The maceration is repeated, and the clear liquid evaporated to the consistence of an extract.

Syrupus Althææ. Macerate 1 part of washed marshmallow root in 20 parts of distilled water for two hours; strain without expression and dissolve in 15 parts of the colature 24 p. of sugar.

Syrupus Croci. 1 p. saffron is macerated in 24 p. white wine for thirty-six hours, strained, and 36 p. sugar added to the liquid.

Syrupus Ferri oxydati solubilis. The moist mass obtained in preparing the soluble saccharated oxide of iron (see page 161) is digested with the sugar in a water-bath for two hours, and the loss from evaporation made up by the addition of water; when cold, enough simple syrup is added to make the whole weigh 300 parts. The syrup contains one per cent. of iron, has a slightly ferruginous taste and is not precipitated on the addition of five times its quantity of water.

Syrupus Liquiritiæ s. Glycyrrhizæ. 4 p. Russian liquorice root are macerated over night in 18 p. water. The expressed and strained liquid is boiled up once and evaporated until, after cooling and filtering, 7 parts of liquid are obtained, in which 12 parts each of white sugar and honey are dissolved.

Syrupus Rhei. 12 p. cut rhubarb; 3 p. cinnamon; 1 p. carbonate of potassium; 100 p. distilled water. Macerate over night, strain and filter. In 80 parts of the filtrate dissolve 144 parts of sugar.

Syrupus Sarsaparillæ compositus. Cut sarsaparilla, 24 p.; guaiacum wood, sassafras root, China root, of each 16 p.; brown cinchona, 8 p.; anise, 3 p.; hot water, 250 parts. Digest for several hours, express, filter, evaporate to 80 parts and dissolve therein 130 parts of sugar.

Syrupus opiatus. Extract of opium, 1 p.. Dissolve in a little white wine and add to 1000 parts of simple syrup.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

The detection of atropia by Pfeiffer and Herbst's test (agreeable odor of flowers developed on adding atropia to a heated mixture of bichromate of potassium or molybdate of ammonium and sulphuric acid, adding some water), requires dexterous manipulation. H. Brunner succeeds without difficulty by placing a little atropia upon a few crystals of chromic acid in a porcelain dish and heating slightly until the beginning reduction to chromic oxide is shown by the green color.—*Ber. d. d. Chem. Ges.*, 1873, 98.

Specific gravities of mixtures of glycerin and water.—

Specific gravity.	Water, per cent.	Specific gravity.	Water, per cent.	Specific gravity.	Water, per cent.
1·267	0	1·212	17	1·161	34
1·264	1	1·209	18	1·159	35
1·260	2	1·206	19	1·156	36
1·257	3	1·203	20	1·153	37
1·254	4	1·200	21	1·150	38
1·250	5	1·197	22	1·147	39
1·247	6	1·194	23	1·145	40
1·244	7	1·191	24	1·142	41
1·240	8	1·188	25	1·139	42
1·237	9	1·185	26	1·136	43
1·234	10	1·182	27	1·134	44
1·231	11	1·179	28	1·131	45
1·228	12	1·176	29	1·128	46
1·224	13	1·173	30	1·126	47
1·221	14	1·170	31	1·123	48
1·218	15	1·167	32	1·120	49
1·215	16	1·164	33	1·118	50

—Schweikert, in *Zeitschr. Oesterr. Apoth. Ver.*, 1873, *No.* 13.

Tobias Venetian liniment consists, according to the "Industrie Blætter," of 5 parts ammonia water, 2 parts camphor, 5 parts tincture of capsicum, 30 parts alcohol and 10 parts of water.

The detection of digitalin in forensic analysis is connected with great difficulties. By the method of Stas and Otto the acid ethereal solution yields the digitalin as a resinous mass, and a small portion enters into the alkaline solution. Obtained from the latter it cannot be distinguished from delphinia by the reactions with phosphoric acid or with sulphuric acid and bromine water. Obtained from the former solution it will, in rare cases only, yield the red coloration with H_2SO_4 and bromine water. H. Brunner, therefore, suggests to dissolve the residue in water, add some dilute solution of bile, and then concentrated H_2SO_4 until the liquid assumes the beautiful red color of Pettenkofer's test for sugar, the latter compound being separated from the digitalin by the acid. Other glucosides have the same behavior, but the author thinks this reaction, in connection with the physiological action, sufficient proof of its presence.—*Ber. d. d. Chem. Ges.*, 1873, 96.

Action of sulphuric acid upon chloral.—J. Grabowski observes that chloral in contact with fuming sulphuric acid is, after a while, but with strongly fuming acid, instantly converted into a white crystalline mass, of the composition $C_8H_6Cl_{12}O_{11}S_2$, which may be obtained in needles by crystallizing from ether. Alcohol dissolves the compound readily, splitting it into sulphuric acid and chloral alcoholate. Warm water, particularly in the presence of potassa, yields sulphuric acid, chloral and decomposition products.

The product obtained by conducting the vapors of fusing sulphuric acid into chloral has a different composition, crystallizes from alcohol, but decomposes with warm water and potassa.—*Ibid.*, 225.

The alkaloids of the Cinchona barks.—An important paper reviewing the entire literature on this subject, and containing the investigations of the author, is published by O. Hesse, in *Annalen der Chemie und Pharmacie*, clxvi, 217–278. He comes to the conclusion that the existence of the following cinchona alkaloids may be considered as having been definitely established: quinia, cinchonidia, cinchonia, paricina, quinamina, paytina and conchinia. The first three of these alkaloids are met with in commerce; conchinia (Pasteur's quinidia), however, is rarely found in commerce, except by its name merely. Owing to the confusion existing in consequence of different alkaloids and mixtures of alkaloids having received this name, the author adheres to the name conchinia, first proposed by him, although he fully agrees with Howard that it is closely related to cinchonia, and ought to have been named cinchonidia, while the present cinchonidia, being naturally related to quinia, ought to have received the name of quinidia. Quinamina, paytina and conchinia appear to form a group, and to pass into each other under the influence of cellular vitality. Paricina is distinct from bebeerina, the former being readily soluble in petroleum ether, and fusing at 116° C., while bebeerina is nearly insoluble in that menstruum, and fuses at about 200° C.

The author has never met with aricina, discovered in 1829 by Pelletier and Coriol and by Leverköhn, and which was by Bouchardat and Winckler, in 1839, declared to be identical with cusconina and with Manzini's cinchovatina. Delondre, however, and Howard have found in the bark examined by the former chemists, merely quinia and cinchonia; and Kerner observed a commercial aricina to be cinchonidia and his quinidia.

Origin of frankincense.—J. B. Batka stated at the last meeting of German naturalists and physicians, that the commercial olibanum is not obtained from *Boswellia glabra, serrata* or *papyrifera*, but, according to Birdwood, from *B. Carteri*, which, in Soumali, is called mohr madow, and from *B. Bhau* (dajana mohr add), and *B. Freriana* (yegaar), all growing upon lime rocks in Soumali, the first one also in Hadramout. These statements have been corroborated from Aden by Baron Maltzahn.—*Buchner's N. Repert.*, 175–177.

Origin of China root.—Dr. O. T. Sandahl endeavors to prove that China root is in reality a tuber, although it is destitute of the so-called eyes. These tubers are not obtained from the uncertain species *Smilax China*, Lin., but from *Sm. glabra*, Roxb., as was lately proven by Dr. Hance, who received a living plant, with the subterraneous parts attached, from Mr. Bowra, thus confirming the supposition of Roxburgh, expressed in Vol. iii, 192, of his Flora indica. Dr. Hance also calls attention to the fact that in all countries the roots, &c., of various species of *Smilax* are held in high repute for their alterative, diuretic and diaphoretic virtues, and argues from this that sarsaparilla and other smilaceæ may not be as ineffective as many physicians suppose.—*N. Jahrb. f. Pharm.*, 1872, *Feb.*, *from Nordiskt Medic. Arkiv*, IV.

Extract of malt.—L. W. Jassoy gives the following directions for preparing a malt extract superior to that of the German Pharmacopœia: Coarsely ground malt is macerated for three hours with its own weight of cold water, and then digested for one hour at a temperature not exceeding 65° C. (150° F.) After straining the liquid through a sieve, the residue is boiled for fifteen minutes with triple its quantity of water, allowed to cool to about 70° C. (160° F.), strained, and the two liquids mixed. The first colature contains much active diastase, the second a large quantity of starch, which, after mixing at 50–56° C., is readily converted into sugar. On evaporating with slow boiling, the dirty scum separates albuminous matters, and the clear filtrate yields, on evaporation, an excellent extract, equal to from 75 to 85 per cent. of the malt.—*N. Jahrb. f. Pharm.*, 1873, *March.*

Nitrate of potassium in Amarantus Blitum.—Boutin has obtained from the dry plant 8 per cent. carbonate, corresponding to 11·68

per cent. nitrate of potassium, the insoluble portion of the ashes consist of lime, iron, alumina and silica. If cultivated in good soil 8·100 to 10·000 kilograms of the plant might be obtained per hectare, corresponding to 400 to 500 kilograms of potassa.—*Journ. de Pharm. et de Chim.*, 1873, *May.*

Density of absolute alcohols.—Is. Pierre has determined the specific gravities as follows:

Ethylic alcohol,	0·815	at 0° C.;	0·80214	at 15° C.	
Butylic	"	0·817	"	0·806	"
Propylic	"	0·8198	"	0·80825	"
Amylic	"	0·8253	"	0·8146	"

—*Ibid.*

*Distilled orange flower water.**—L. Malenfant observed that fresh orange flowers, mixed with cold water, yield, on distillation over the naked fire, a milky water, possessing a somewhat empyreumatic odor and a strong, somewhat acrid taste. Kept for twelve or eighteen months in glass vessels covered with parchment, it loses its empyreuma, and after filtering has an agreeable odor and taste.

If the flowers are mixed with boiling water and immediately distilled the water is limpid, and gradually separates some thick oil of a brownish color; the water has odor and taste of the flowers, but complicated with a still smell (*goût de feu*), which it loses after long keeping; it seems to alter less rapidly than that obtained by the former process.

Distilled by steam a limpid water of a pure odor and taste is at once obtained, free from empyreuma; it may be at once used, and keeps better in the light than when obtained by the two former processes.—*L'Union Pharm.*, 1873, *Feb.*

ON THE USE OF DRY-POWDERED BLOOD.

By Dr. de Pascale, of Nice.

Several years ago I published from my experience and medical practice, some observations on the very beneficial effect of warm blood taken the moment when extracted from the calf or ox, killed for general domestic use.

I mentioned at that time the cases of three invalids, not English,

* See also *Amer. Jour. Pharm.*, 1872, 426 and 473.

suffering from hæmoptysis, in whom tubercles were diagnosticated, who derived great benefit from that treatment. The quantity of blood lost by one of the above-mentioned invalids was enormous; but his perseverance for two years or more in drinking daily the blood, made him well and healthy. At this present time he is walking about Nice, or attending to the business of his large establishment.

I do not wish to dwell upon the great improvement in my own general health after drinking the warm blood for about a month. One of the English doctors practising in this place had the opportunity of verifying my improvement, and the experiment which I made, when in a state of general weakness and pallor, in consequence of suffering for many years from malarial fever, taken during the siege of Venice in 1848 and 1849.

Every one knows the history of those barbarians, who were accustomed to drink the blood of their victims at a feast after their battles; and also of those who were supported by the blood of their companions, wrecked in the *Medusa* in 1807; and of others who have been nourished in the desert by the blood of animals.

Dioscorides affirms in his *De Medicinali Materia*, that animal blood has been used for the purpose of curing diseases; the old women adopted a similar system.

Finding among the English and American patients in Nice an unconquerable repugnance to such a remedy, the name only having the power of producing nausea, I was obliged to disuse it. But afterwards a dim reollection of the manner in which it was administered by old medical men in my youth, made me adopt the plan of giving it in the form of dry powder.

History also relates that dry-powdered blood was used before the thirteenth century, when the quack, Jean de Gaddesden, brought it into renown.

It is easy to understand the comparative difference between the warm and the dry blood. In the first there is life with animal heat, and volatile principles, which conduce to assimilation. Notwithstanding, in the dry blood, fibrin, albumin, hæmatozin, manganesic, and ferruginous salts remain.

Between the seventeenth and eighteenth centuries the celebrated anatomist of that day (F. Buischio) found in the blood the necessary elements for the composition of every tissue of our body. At the end of the seventeenth century also was discovered one of the most

important principles of the blood, that is iron, by M. Lamey, and afterwards by Berzelius. According to Berzelius, a distinguished professor of chemistry, the blood of the ox is most similar to that of man; this, in fact, I have used in several cases of general weakness with anæmia, and in cases of chlorosis.

The blood of the ox, after being dried in a water-bath, is reduced into a very fine powder, and grated through a sieve. Dry blood can be taken for any length of time, being almost tasteless, and no repugnance is likely to be felt, as is often the case with raw meat. It can be taken as any common powder, mixed with soups, milk, marmalade, chocolate, or enclosed in a wafer.

In two cases I have given the powdered blood under the name of nutritive powders, mixed with a small quantity of pepsin; choosing that name lest ladies, startled by one more precise, might have difficulty in taking the medicine.

The quantity to be taken may vary according to the age, sex, or the state of health and digestive power of the patient. In general, I begin with thirty grains, which is increased according to circumstances; but quantity must be left to the discretion of the physician who prescribes.—*Med. Press and Circ., Lond., Jan.* 29, 1873.

DETECTION OF THE SUBSTITUTION OF CARBOLIC ACID FOR CREASOTE.

By John A. Clark, Guelph.

In the *Can. Pharm. Journal*, No. 12, Vol. 5,* there is a communication from Mr. Morson, London, on the substitution of carbolic acid for creasote. He states that there is no good test for distinguishing between the two, but proposes the use of glycerin, in which carbolic acid is easily soluble, but creasote insoluble. A far better test is the alcoholic solution of perchloride iron (or Tr. Ferri Perchlor B. P.), which, when added to an alcoholic solution of creasote, produces a "dark greenish-blue" color, but with an alcoholic solution of carbolic acid only a "light brown" coloration. By this test 1 part of creasote in 500 parts carbolic acid can be easily detected. But the adulteration of creasote by carbolic acid is more difficult to detect, but can be ascertained in the following way: Boil a few drops of creasote with nitric acid (about 2 drs.) until red fumes are no longer evolved; this yields a solution, which, when neutralized with solution of caus-

*See *American Journal of Pharmacy*, pp. 310, 465 and 503.

tic potash, gives *no precipitate*, the creasote forming oxalic acid. Carbolic acid, when treated in the same manner, is very violently acted on by nitric acid and forms picric acid (trinitro-phenylic acid) which, when neutralized with solution of potassa, gives a "yellow crystalline" precipitate. 1 part of carbolic acid in 50 parts creasote can be readily detected in this way.—*Can. Pharm. Journal, May*, 1873.

ON THE CHARACTERISTIC PROPERTIES OF THE COMMON OILS.

By M. G. Glœssner.

After having reviewed the characters of the various fatty non-drying oils (olive, almond, rape, sesame, palm), and of the drying (linseed, poppy, castor), the author tabulates the properties by which they may be recognized.

Action of Potassa in the Cold.—We agitate 5 volumes of the oil with 1 volume of potassa of sp. gr. 1·34. The mixture is:—

White—almond, rape (best), bleached olive.

Yellowish—Poppy, olive, rape, sesame.

Greenish—Linseed, hemp. Oils containing copper, or artificially colored.

Rose—Rape (refined).

Brown and compact—Hemp.

Yellow-brown and liquid—Linseed.

Red—Whale.

The oil is poured in a test-tube upon an equal measure of fuming nitric acid. There appears at the surface of separation a narrow transparent green zone—Almond.

Deep green, with a rosy halo at top—Poppy.

Clear blue-green—Olive.

Reddish-brown—Linseed. After some time the coloration extends to all the oil.

Green and red at the upper part—Rape.

Action of Concentrated Sulphuric Acid (10 drops of oil to 2 of acid). Color at the surface of separation:—

Fine green, with brown stripes—Rape.

Yellow, passing into olive-green when stirred—Poppy (*Media sativa*).

Red stripes, shading into black—Whale.

Equal volumes of acid and of oil dissolved in bisulphide of carbon:—

Fine violet coloration passing into brown—Whale.

Same proportions, without sulphide of carbon:—

Deep green coloration—Rape, linseed, hemp.

Red coloration—Whale.

Reaction of Elaidin.—The mass becomes solid, clotty and white—Olive, almond, rape (bleached). Ordinary rape oil gives a yellowish mass.

Red solid mass—Sesame.

Waxy white mass—Castor.

The mass of elaidin traversed by oily striæ—Mixture of drying oils.

No action—Linseed, poppy, nut.

Ebullition with Water and Litharge:—

Solid plaister—Olive.

Viscous plaister—Rape, almonds, sesame.

Viscous plaister, growing hard in course of time—Drying oils.

Solubility in Alcohol.

Olive	1 : 1	Linseed	1 : 40
Poppy	1 : 25	Almonds	1 : 60
Hemp	1 : 30		

Specific Gravities.

Poppy, Rape	0.913	Sesame	0.923
Almond (*Brassica campestris*)	0.914	Sunflower	0.926
Olive	0.918	Castor	0.950—0.960
		Linseed	0.930

Melting-points.

	Degrees. C		Degrees C.
Hemp	— 27	*Brassica campestris*	— 4
Castor	— 18	Sesame	— 5
Linseed	— 16 to — 20	Olive	2.5
Sunflower	— 16	Almond	— 20 to — 25
Rape	— 6		

—*Chem. News*, 1873, *May* 2.

ADULTERATION OF WHITE LEAD.

By Rudolph Wagner.

It has been, and is still, to some extent, the custom in the manufactories to add to white lead a certain quantity of sulphate of baryta, either native or artificially prepared. Lead is often mixed with sulphate of lead, chalk, carbonate of baryta, sulphate of baryta, and pipe clay; but these adulterations are most common in the retail trade. Not any of

these substances ought to be present; they possess no covering power and needlessly absorb oil. Pure white lead ought to be perfectly soluble in very dilute nitric acid, and in the resulting clear solution caustic potassa should not produce a precipitate, for if it does chalk is present. An insoluble residue in the dilute nitric acid indicates the presence of gypsum, heavy spar or sulphate of lead. The sulphate of lead may be recognized by reducing the lead with the blowpipe. Sulphate of baryta can be made evident by ignition with charcoal in the blowpipe flame, treating the residue with dilute hydrochloric acid, and adding a solution of gypsum, which again yields a precipitate of sulphate of baryta. Gypsum does not yield an insoluble precipitate with dilute nitric acid, but does so with a solution of oxalate of ammonia. According to Dr. Stein, the most simple method of estimating quantitatively a mixture of white lead and sulphate of baryta is to heat the weighed sample in a piece of combustion tube, and to collect the carbonic acid in a Liebig's potassa bulb, a chloride of calcium tube being fastened by a perforated cork to the combustion tube to absorb the moisture. The quantity of carbonic acid given off stands in direct proportion to the quantity of carbonate of lead present. Pure white lead of good quality gives off about 14·5 per cent. of the gas, and, according to Dr. Stein's researches, the undermentioned series of mixture gave off the quantities of carbonic acid indicated:

33·3 parts of white lead and 66·6 parts of heavy spar lost by ignition 4·5—5 per cent.

66·6 parts of white lead and 33·3 parts of heavy spar lost by ignition 6·5—7 per cent.

80·0 parts of white lead and 20·0 parts of heavy spar lost by ignition 13·0 per cent.

50·0 parts of white lead and 50·0 parts of heavy spar lost by ignition 10—10 per cent.

The extensive applications of this material as a constituent of paints, "to give body," as the term runs, and as putty, and for various chemical operations, are well known. It has been experimentally proved by Dr. G. J. Mulder in his treatise "On the Chemistry of Drying Oils and the Practical Applications to be Drawn Therefrom," that the quantity of white lead used in proportion to linseed oil for painting purposes is far too great, being on an average from 250 to 280 parts of white lead to 100 parts of oil, while the author found that 52 parts of unadulterated white lead, or 44 parts of oxide

of lead to 100 parts of raw or boiled oil are amply sufficient quantities. White lead, however useful, is very sensitive to the action of sulphuretted hydrogen, by which it is blackened and discolored, causing not only all the white paint to be spoiled, but also all pigments and paints of which white lead is a constituent, as may be seen to a very large extent every summer at Amsterdam, where from the stagnant canals sulphuretted hydrogen is abundantly given off. The action, however, of the sea air in autumn has the effect of somewhat restoring the blackened and discolored painted surfaces to their primitive hue. The late Professor Thenard suggested that pictures which had become blackened should be cleaned by means of peroxide of hydrogen, the oxygen of which present as ozone converts the blackened lead colors into white sulphate of lead.

In this country it has become an almost universal custom to sell white lead ready ground with linseed oil into a thick paste. This practice certainly saves painters a great deal of trouble, but is also pregnant with the difficulty of detecting adulteration, while there is a chance of inferior oil—resin oil—being added. The oil almost entirely prevents the action of any acid upon the paste; even if very strong nitric acid be taken, and heat applied, the decomposition and disintegration are very slow and incomplete, and, besides, owing to the insolubility of nitrate of lead in nitric acid, the action of strong nitric acid upon oil thus mixed gives rise to a variety of compounds, which interfere with the usual modes of testing the white lead. To remove the oil in order to test white lead, the best plan is to thoroughly incorporate some of the sample with a mixture of chloroform and strong alcohol in equal parts, and to wash the mass by decantation or on a filter with a fluid composed of alcohol.* The quantity of the oil may then be ascertained by the evaporation of this solvent. After washing once or twice with boiling alcohol and then drying, the white lead can be readily tested by any of the known methods.—*Journ. Applied Chemistry, April*, 1873.

*In the examination of white lead ground in oil, we have successfully used both petroleum benzin and ether, as suitable solvents for removing the linseed oil. The white lead must be thoroughly incorporated with the solvent, of which, after decantation, fresh portions should be used, until the residue after drying, becomes pulverulent, when the washing may be completed upon a filter. On treating the lead now with dilute nitric acid, a little oxidized fat separates readily.—Ed. Am. Jour. Phar.

QUALITY OF GLYCERIN AS IT EXISTS IN COMMERCE.

By Alfred Henry Mason, F. C. S.

From a more extensive paper, treating of the chemical history, its various applications, &c., we extract the part relating to the quality of the commercial article.

Many impurities are necessarily found in crude glycerin according to the process of manufacture, or the quality of water used in manufacturing; for industrial purposes these impurities are not objectionable or disadvantageous, if only present in moderate proportions. For medicinal use, of course, it is absolutely necessary that pure glycerin should be used, and the glycerin purified by Wilson's process, manufactured by Price's Patent Candle Co., is undoubtedly superior to any other I have examined. The fact that Continental manufacturers now offer medicinal glycerin, *à la Price*, inodorous, etc., would tend to substantiate this statement, and it occurred to me that it might be interesting to know how these various manufactures compare with Price's; hence the ultimate object of this paper.

I have selected nine samples to report upon, and these represent English and Continental manufactures.

The various chemical re-agents, shown with the results in the tabular form below, have been applied in the usual way, standard solutions being added to the specimen of glycerin (the glycerin previously diluted with an equal bulk of water), excepting the argentic nitrate—one part of solution was added to four parts of undiluted glycerin, and the mixture allowed to stand 24 hours. The specific gravity was taken at 60° Fahrenheit, with Beaume's hydrometer, and several were taken by weight and found to correspond. The odor is easily ascertained by rubbing a little glycerin on the back of the hand; the peculiar mousey smell with some samples is easily detected, and this becomes more intense by heating a little of the glycerin in a test tube. Glycerin mixed with an equal volume of rectified sulphuric acid should not produce effervescence, or coloration, if sufficiently pure for medicinal use.

By adding absolute alcohol and concentrated sulphuric acid to glycerin on heating, a fruity smell is set free, more or less intense, owing to the presence of butyric acid and (or) formic acid; the peculiar pine-apple odor is very strong in some samples, showing the formation of butyric ether.

Table of Analysis.

Sample.	Specific gravity Hydrometer.	Color.	Odor.	Odor when heated	Sulphuric Acid.	Argentic Nitrate.	Ammonium Oxalate.	Potass. Ferrocyanid.	Ammon. Sulphide.	Barium Chloride.	Litmus.	For Butyric Acid.	For Sugar
A	31° B.	None	None	Very faint	No change	No change	No change	No change	No change	No change	No change	Slight smell	None
B	30° B.	"	"	Slight mousey smell	Slight Discoloration	"	"	"	"	"	"	Present	"
C	30° B.	"	Slight	"	"	Slight tinge	Slightly turbid	"	"	"	"	"	"
D	30° B.	"	"	"	No change	"	"	"	"	"	"	"	"
E	31° B.	"	Very faint	"	Slight tinge	Faint opalescence	No change	"	"	"	"	"	"
F	29° B.	"	Fatty	"	"	Slightly tinged	Slightly turbid	"	"	"	"	"	"
G	28° B.	Slightly tinged	"	Disagreeable, Fatty	"	More tinged	"	"	"	"	"	"	"
H	28½° B.	"	Mousey	More mousey	Discoloration	No change	No change	"	"	"	"	"	"
I	28° B.	Brown	Strong and fatty	Strong and fatty, very offensive	Intense discoloration and disagreeable odor	Flocculent deposit	Great deposit	"	Discoloration & black deposit	Deposit	Red	Plenty, and disagreeable fatty smell	"

For the detection of sugar and glucose in glycerin.—To five drops of the glycerin to be tested, add 100 to 120 drops of water, one drop of pure nitric acid, and one grain of ammonium molybdate, boil the mixture, and in less than two minutes it will assume an intense bluish-green color if any sugar or glucose is present.

In the foregoing table, A represents Price's patent glycerin; B, C, D, E, F, were sold by Continental manufacturers as double distilled white glycerin, *à la* Price, inodorous, guaranteed to stand the nitrate of silver test (sp. gr. 30° to 31° B.); G and H, as refined glycerin (28° B. sp. gr.); and I is a sample of concentrated *crude* glycerin from Hamburg, as exported for manufacturing purposes. A, B and H have been exposed to strong sunlight in closed vessels for two days. A was unchanged, but B and H had the mousey odor very fully developed, but without discoloration.

It will be observed that there are slight impurities in B, C, D, E, but I think none to prevent the majority of the samples being used in pharmacy and medicine when not intended for internal administration.

I consider that pure medicinal glycerin should not be affected by nitrate of silver, sulphuric acid, oxalate ammonia, or exposure to sunlight, and should be perfectly free from smell after this treatment. —*Chemist and Druggist*, 1873, *April.*

Varieties.

India Rubber Varnish.—There are many substances, among them nitrate of silver, upon which pure india rubber has no deleterious effect. Now, as india rubber dissolves with readiness in chloroform, sulphuric ether, bisulphide of carbon, and caoutchoucin, and as these solvents, when evaporated, leave the rubber firm and unaltered, it is evident that we have in a varnish so composed a means of applying a coating of pure rubber of any degree of thickness to the inside of any vessel, such as a photo bath composed of either ebonite, gutta percha, wood, or any other material of a similar description. From experiments made in this direction, using bisulphide of carbon as the solvent, a coating of rubber of a good quality has been obtained, which will answer most effectively for preventing all contact between the silver solution and the material of which the bath itself is formed.—*Sci. Amer., March* 15, 1873.

Note on the Solvent Action of Glycerin on the Metallic and Calcareous Oleates, and on Sulphate of Lime.—E. Asselin.—Pure glycerin, free from lime, of

the sp. gr. 1·114, dissolved 0 71 per cent. of iron soap, 0·94 of magnesia soap, and 1·18 of lime soap. The metallic and earthy sub-soaps, which impregnate the fibre of wool in the process of combing, are easily emulsified by water mixed with glycerin. Sulphate of lime dissolves in glycerin to the extent of 0 957 per cent., and the amount dissolved increases with the temperature.—*Chem. News, Lond., April* 25, 1873, *from Compt. rend.*

An Application to Corns.—A correspondent in Illinois writes us: "I find in the 'Medical and Surgical Reporter' of Jan. 25, 1873, a cure for corns, and as that remedy (green peach tree leaves) could not be easily obtained at present in this climate, and as corns are most troublesome in winter, I would suggest a remedy equally effective and obtainable at any time. It is castor oil applied to the corn after paring closely each night before going to bed. It softens the corn and it becomes as the other flesh. It will cure every time."—*Med. and Surg. Reporter, Feb.* 22, 1873.

On the Value of Sulphate of Cinchonia.—M. Briquet, the well-known author of an exhaustive treatise on cinchonia, advocated the properties and uses of sulphate of cinchonia at a recent meeting of the Paris Academy of Medicine. His conclusions were based upon 893 authenticated cases of cure by the sulphate, from Magendie and Chomel to our days. Its success was especially great in cases of intermittent fever of middling intensity. Furthermore, it arrests the paroxysms of typhoid, amends the symptoms of intermittent neuralgia, and is of great benefit in acute articular rheumatism. Dr. Briquet lays great stress on the mode of administering the drug. It should be given in a watery solution, in doses of from fifty centigrammes to one gramme (eight to fifteen grains), according to the intensity of the fever. The whole dose must not be given at once, but must be divided over five or six hours, and it is extremely important that the substance should be taken during the apyretic interval, and at least eight or ten hours before the return of the fit.—St. Louis *Med. and Surg. Journ., March*, 1873, *from London Lancet.*

Improvement in Bending Glass Tubes.—A. H. Gallatin.—If the glass tube we desire to bend be filled with *sand*, and each end stopped to prevent its escape on heating over a Bunsen burner, it will be found that the tube may be quite doubled if desired, a perfect curve being produced. In this way we may promptly produce accurate bends of any desired size, in tubes of any bore, without any previous skill in glass-working. Obviously, the principle depends on a uniform distribution by the sand of the pressure exerted. A similar plan is resorted to by metal-workers in bending tubes of lead.—*Journ. Franklin Inst., March*, 1873.

Gilding Iron.—The employment of sodium amalgam is recommended by Kirchmann as a simple and effective means of covering iron with a gilded surface. The process, in brief, consists in first spreading the amalgam upon the surface of the metal, which at once coats itself with a layer of quicksilver, even

though it may be somewhat rusted. Upon the surface thus prepared a concentrated solution of chloride of gold is poured and the mercury volatilized by heating before the lamp or in a furnace. The result is that a gold surface remains behind which is susceptible of a bright polish. With silver and platinum, it is said, similar results may be obtained.—*Ibid.*

A New Solvent for Iodine.—Dr. I. Walz.—I find that glacial acetic acid is an excellent solvent for iodine, certainly not inferior to alcohol. On heating acetic acid with excess of iodine to boiling, and then allowing to cool slowly, beautiful, large, slender crystals of iodine will form (sometimes half an inch long). The crystals formed from supersaturated alcohol solution of iodine are short, of arrow-head shape, and by no means so abundant, for glacial acetic acid takes up far more iodine hot than cold. I hope you will make this easily executed experiment, and you will then see the finest iodine crystals yet produced.

If saturated alcoholic and glacial acetic solutions of iodine are mixed in equal proportions, and allowed to stand, *acetic ether* is formed. The presence of a little MnO_2 and a drop of $SO_4 H_2$ seems to promote the formation, but is quite unnecessary.—*Ibid., April*, 1873.

Minutes of the Pharmaceutical Meeting.

A pharmaceutical meeting was held May 20th, Mr. Joseph P. Bolton in the chair. In absence of the Registrar, William McIntyre was elected to act in that position pro tem.

The minutes of the last meeting were read and approved.

The Chairman introduced Mr. John Butler, of Germantown.

Prof. Maisch made the following presentations: Two volumes of the Swiss Weekly Journal of Pharmacy for the years 1870—71; Proceedings of the Montreal College of Pharmacy, containing papers on the Eucalypts of Australia and on essential oils obtained from various Victorian plants; from Mr. J. Creuse, preparations of iron, free from ferruginous taste, made by his new method with alkaline citrates, sesqui-iodide of iron, syrup of ferric iodide, elixir of the same and tincture of chloride of iron.

Salts of the sesqui oxide of iron are now preferred for medical use, this being the state in which iron is always found in animal and vegetable substances used for food.

Granular effervescent Vichy salts, very handsome in appearance, made by Keasby & Mattison, of Philadelphia, was exhibited.

The new General Index of the American Journal of Pharmacy was shown and its arrangement explained. Mr. Wilder has produced a very creditable work, consisting of two parts—an alphabetical index of the contents of the papers published in forty-two volumes of the Journal and one of the authors.

Prof. Maisch exhibited a plant, *Asclepias curassavica*, L., the root of which is used in the West Indies in place of ipecacuanha.

This being the last meeting of the season, it was suggested that the members of the College should, during the coming months, carefully note down their experience with the preparations of the new pharmacopœia, with the view of bringing their observations, if not published before in the Journal, to the notice of the pharmaceutical meetings next fall, and thus contribute at once interesting and important subjects for discussion.

The meeting then adjourned.

WILLIAM MCINTYRE, *Registrar pro tem.*

Pharmaceutical Colleges and Associations.

VERMONT PHARMACEUTICAL ASSOCIATION.—President Dutcher has appointed the following delegates to the next meeting of the American Pharmaceutical Association: Messrs. M. K. Paine, Windsor; A. W. Higgins, Rutland; C. B. Wilson, Montpelier; E. W. Burritt, Burlington, and Chas. H. Warren, Springfield.

MASSACHUSETTS COLLEGE OF PHARMACY.—The annual commencement of the seventh session was held in Horticultural Hall May 7th. The Vice-President, Dr. C. A. Tufts, conferred the degree of Graduate in Pharmacy upon six gentlemen: Wm. W. Bartlett, L. C. Flanagan, F. M. Loring, Chas. P. Orne, Saml. C. Tozzer and Jos. S. Whall. Professor C. M. Tracy delivered the valedictory, and Hon. G. S. Hillard the annual address. The last class numbered eighty five students.

ALUMNI ASSOCIATION OF THE MASSACHUSETTS COLLEGE OF PHARMACY.—This society, which had its nucleus in the little class which graduated from the Massachusetts College of Pharmacy in 1869, held its annual meeting at the rooms of the College, No. 8 Boylston street, on the 8th of May. There were present about twenty gentlemen. After disposing of reports from various committees, the following officers were elected for the ensuing year: President, Thos. Doliber; Vice Presidents, J. C. Loud, E. L. Patch; Secretary, C. E. Tappan; Treasurer, C. H. Bassett; Auditor, C. A. Tufts; Executive Board: G. F. H. Markoe, J. S. Talbot, E. S. Kelley and L. D. Drury.

The President gave an interesting account of the labors and progress of the past year, and made some valuable suggestions concerning their efforts in the future. After a congratulatory address by Prof. Babcock, an interesting discussion took place upon the late revision of the United States Pharmacopœia. The establishment of a journal of pharmacy in Boston was considered, and a good deal of enthusiasm evinced on the subject. The Association has held meetings every month during the past year, which have been attended with great interest. A large number of valuable papers have been read, and elaborate reports of experiments and studies made; among the number an interesting paper on the adulterations of milk. Reports of experiments in the manufacture of hydro-bromate of quinia and mono-bromated camphor, detec-

tion of impurities in phosphate of iron, while much valuable discussion has taken place.

The annual supper, at the American House, was attended by members and invited guests of the Association, and addresses were made by a number of the participants.

Literary and Scientific Society of the German Apothecaries of New York.—Under this title the two German pharmaceutical organizations which had existed for a number of years in the city of New York, are now united into one chartered corporation, numbering about eighty pharmacists. They hold quarterly stated meetings and weekly conversational meetings, and keep the best German pharmaceutical periodicals circulating among the members. Their library, which contains some very valuable works, is located in the library room of the College of Pharmacy. They will be represented by a delegation at the next meeting of the American Pharmaceutical Association.

New York College of Pharmacy.—The Board of Trustees, at their meeting held May 1st, authorized the expenditure of a sum of money to organize a summer course in practical botany and analytical chemistry. A resolution, offered by Mr. Rice, to have the arrangements for each course of lectures made in the month of January, to enable the lecture committee to issue the prospectus early in the spring, was referred to the next College meeting. On motion of Mr. Balluff, seconded by Mr. Peixotto, the Secretary was directed to send short extracts of the minutes to the "Druggists' Circular," the "American Journal of Pharmacy," and to the "Pharmacist and Chemical Record."

Drs. William Neergaard and W. Manlius Smith having resigned their position as members of the New York Board of Pharmacy, a special meeting of the College was held May 22d to fill these vacancies.

Cincinnati College of Pharmacy.—At the monthly meeting held April 8th, Professor Wayne presented to the College, among other specimens, some expressed and essential oil of peach kernels, the former bland and sweet like the expressed oil of almonds; the latter having all the properties of essential oil of almonds, but the yield being only one and a half drachms from twenty-five pounds of kernels. In the discussion on fluid extracts of the new pharmacopœia, the use of glycerin was favorably commented upon for those containing much tannin, like cinchona, as tending to prevent change and precipitation; but the opinion was that it had been carried too far, and that it was, in many cases, an expensive addition without material benefit.

Professor Wayne observed that the reduction of oxide of mercury by oleic acid did not occur, if the acid was obtained by saponification instead of by distillation. A specimen of mercurial plaster was exhibited, made by decomposing soda soap by mercuric chloride; it was of a pale yellow color, contained 32 per cent of mercury, dissolved freely in oils and is recommended as a substitute for the oleate of mercury, having the same therapeutic value.

Professor Judge presented specimens of *Mylabris cichorii* and *phalerata*, and gave an account of their occurrence, uses and strength in cantharidin.

The Louisville College of Pharmacy has received a donation to its cabinet, from Messrs. Grimault & Co., Paris, through Messrs. A. Peter & Co., of twenty specimens of pharmaceutical preparations; also a donation from Mr. Charles Mohr, Mobile, Ala., consisting of capsule of *Hura crepitans*, fruit of a palm, legume of a species of Hovea; roots of *Exogonium purga* collected by the donator; root of an Ipomœa brought into market by the Indians with true jalap; fruit of an Aristolochia.

The undersigned was directed, by the Board of Directors, to tender, through the "American Journal of Pharmacy," their cordial thanks for these much appreciated donations.

William G. Schmidt, *Corresponding Secretary.*

The Tennessee Pharmaceutical Association has been formed on the 14th of May, at Nashville, the preliminary session having been held on the preceding day at the Council Chamber. The meeting, which was well attended by pharmacists from different parts of the State, was called to order by Dr. B. Lillard, and Dr. Th. Black elected temporary chairman. After some discussion on pharmaceutical legislation and other important topics, the meeting adjourned, to constitute itself at the second session into a State Association. The following temporary officers were elected to serve until the next meeting, to be held in the fall, when a permanent organization will be effected: President, J. C. Wharton; Secretary, B. Lillard; Treasurer, R. E. Page. A committee was appointed to prepare an address to the pharmacists and druggists of Tennessee, urging them to become members; also a committee on constitution and by-laws; a committee of reception, and a committee of three to prepare a petition to Congress asking the repeal of the stamp tax, and tax on alcohol when used in connection with our business, and that the same be sent to all the druggists and physicians in the State for signature. This last committee consists of Messrs. W. D. Kline, B. Lillard and W. H. Lickhardt.

California Pharmaceutical Society.—At the meeting held April 9th at their rooms, No. 728 Montgomery street, San Francisco, Mr. Calvert in the Chair, an informal report from the Trustees of the College of Pharmacy was made, exhibiting the arrangements made and describing those yet contemplated for the lecture room.

The College has lately received from the well-known house of Powers & Weightman, manufacturing chemists in Philadelphia, a magnificent donation of fine chemicals, comprising 112 varieties.

The prospectus for the course of instruction will soon be issued and the College be in active operation.

Montreal College of Pharmacy.—At the meeting held February 6th, Mr. Christian Hoffmann, of the Geological Survey of Canada, who was formerly phytologic chemist to the State Gardens at Melbourne, Australia, read a paper on the Eucalypts of Australia, describing their products and the uses to which they are put, and reporting the results of many chemical experiments. The

timber of the Eucalypts when green is generally soft, but when cut into beams, planks, etc., it soon becomes very hard and difficult to work. The bark of *Eucalyptus leucoxylon*, Fr. Mueller, contains much gum resin, and is remarkable for its hardness; that of *E. obliqua*, L'Her, is used for roofing purposes, and will furnish printing and writing paper; while the barks of many other species will yield packing paper and paste boards. Gum resins occur in the Eucalypts in flattened cavities in the otherwise solid wood as viscid liquids ultimately becoming hard and brittle. The liquid gum resins are obtained from incisions made in the wood, and lose about 65 per cent. at 212° F., when they are easily pulverized. They are usually of a dark red brown color and intensely astringent taste. Botany Bay kino is obtained from *E. resinifera;* that from *E. rostrata* is even preferred to others as an astringent.

In Victoria alone, about 71,500 square miles are estimated to be covered by various species of Eucalyptus, from which essential oils in almost unlimited quantity might be obtained. These oils are useful in perfumery as solvents for various resins, among them kourie, and for illuminating purposes, their illuminating power being almost equal or superior to the best American petroleum.

Saccharine substances, called manna, are obtained from *E. viminalis* and *E. dumosa*, the former secreted by the leaves and slender twigs from punctures or injuries, the latter being the secretion upon the leaves of the pupa of an insect of the Psylla family.

The General Austrian Apothecaries' Society has received from the Department of Culture and Education of Austria, a subvention of five thousand guilders, to be expended for building their hall and school, and an additional two thousand guilders towards their cabinet of natural philosophy.

The Pharmaceutical Society of Paris held a meeting April 2d, M. Grassi presiding. M. Petit stated that from 25 litres of herring pickle he had obtained 30 grams muriate of trimethylamina and 45 grams chloride of ammonium.

M. Guichard showed some large crystals of benzoic acid, obtained by the slow action of sulphide of carbon upon benzoin, and said that this menstruum appears to present certain advantages as an agent for purifying resins. M. De Vrij observed that some resins, like that of *Podocarpus cupressina*, are not dissolved by sulphide of carbon.

M. De Vrij communicated the results obtained by Prof. Oudemans, of the Netherlands Polytechnic School, on the variations of the rotary power of active substances which is influenced by the vehicles in which they are dissolved, instancing cinchonidia with a left rotation varying in degree with the strength of alcohol used as a solvent, and cinchonia, whose right rotation is influenced by the use of alcohol or chloroform; hence the necessity of always employing the same solvent when making comparative experiments. M. Carles' quinimetric process* has not furnished him with reliable results, which M. Vigier accounted for by some neglect or fault in the operation. For determining the value of cinchona bark by the rotatory power of the alkaloids, the total

*See American Journal of Pharmacy, 1873, p. 27.

quantity of the latter should be tested; if the rotation is powerfully to the left, the bark is valuable for the manufacture of quinia; a slight left or a right rotation, however, shows the bark to be unsuitable.

Editorial Department.

The General Index to the American Journal of Pharmacy.—In another place we publish a review of this work, which has been compiled by Mr. Hans M. Wilder, and is now ready for distribution. The value of such a work is readily seen by those who frequently, or even occasionally, have to consult the "Journal" in search of information on new and old medicinal substances, on scientific facts, practical details, formulas, historical and other notices referring to pharmaceutical matters, either directly or indirectly. Scattered through 43 volumes (including the preliminary volume), which have been published during a period of 45 years, the information is now made available to its full extent by consulting this General Index, which will prove to be of great value not only to those possessing complete sets of the "Journal," but to all seeking information on pharmaceutical subjects, and particularly on American pharmacy. The readiness with which the "Journal" can now be consulted will doubtless induce some of our readers to complete their sets as far as possible; while those who are interested in special subjects may procure single numbers, at 50 cents each, or complete volumes, as far as the stock on hand will permit. Information on this point can be obtained from the notices of the Business Editor and the Publishing Committee contained in the back part of the volume.

The price of the General Index has been fixed by the Publishing Committee at $3 per volume in paper cover, and at $3·50 per volume bound in cloth; to be obtained on remittance of the amount to the Business Editor, H. H. Wolle, 145 N. 10th street. Great care has been bestowed upon the preparation of the manuscript and the proof-reading, to render the work as nearly free from errors as possible; and a portion of the labor having been performed gratuitously, the Committee was enabled to put the price as low as stated above, at which figures by far the largest portion of the edition will have to be sold to reimburse the College merely for the cash expenses incurred in getting out this useful and much needed Index.

The Dangerous Properties of Mixtures of Chlorate of Potassium and Tannin, to which we referred in our last number, are further illustrated by the following communication from Mr. G. Macdonald, now of Kalamazoo, Mich., whose suggestion to dispense the dry articles not mixed, but in separate papers, we heartily commend to the notice of both physicians and pharmacists:

Chlorate of potassium and tannin came very near having another victim in Cairo, Ill., about three months ago. The explosion was so violent as not merely to break the mortar (a strong wedgewood one), but to shiver it into innumerable fragments; in fact, the bottom of the mortar was ground almost into fine powder. The materials had been loosely mixed some time before, and had become very dry. A small quantity—perhaps 20 grains—were put into the mortar,

and rubbed with considerable pressure. The truth is, the young man was showing off to a customer with a little fulminating powder that he had made. Fortunately, no one was injured.

I not long ago received from a physician a prescription ordering 6 oz. potass. chlor. and 6 drachms tannin, to be mixed together, and divided into 12 parts, to be used as a nasal douche. I did not choose to take the risk of even mixing them loosely with a spatula, but divided each ingredient into 12 parts, and folded them up separately, directing the customer to add one of each of the powders to the specified quantity of water. This, it appears to me, is the only safe way of dispensing such prescriptions.

Oleate of Mercury and Morphia.—One pound (7000 grs.) of this preparation, of 2 per ct. morphia strength, contains 140 grains of basic morphia. The figure 170 on page 160, line 8 from top, should be corrected to 140. The word *combined* on page 159, line 8 from bottom, should read *uncombined*.

The "Polaris" Polar Expedition.—Our readers are aware that a portion of the crew of the "Polaris" have recently been rescued from the ice upon which they had been drifting for six months. Among them is Joseph Mauch, a brother of the celebrated African traveller Carl Mauch. Joseph Mauch, we have been informed, is a graduate of the New York College of Pharmacy, and was formerly with Mr. Th. Frohwein. He is described as a highly educated and scientifically trained young man, who sought to join Captain Hall's expedition in a scientific capacity, but, finding it impossible, joined as sailor. Although small in stature, Mr. Mauch is strongly built, and, like his brother, imbued with a passionate desire for travel and exploration.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Index to the American Journal of Pharmacy, from its commencement, December, 1825, to November, 1870, inclusive. Compiled by Hans M. Wilder. Philadelphia: Merrihew & Son, Printers. 1873. 8vo, pp. 318. Double column

This work, to which we have repeatedly referred during the last two years, is at last ready for distribution, its pages being of the same size as those of the "American Journal of Pharmacy," and printed with the same clear type. It is prefaced by a historical notice of the "American Journal of Pharmacy," and a note by the author, from which latter we learn that the following rules have been always kept in mind in preparing the Index: 1, completeness; 2, systematic arrangement (to put together what belongs together); 3, synonyms (such as are likely to occur to the American pharmacist), and, 4, accuracy as to volume and page.

Having had occasion to examine the proof-sheets, we can testify to the strict adherence to these rules by the author. The book contains about 30,000 references in all, containing not merely an alphabetical enumeration of the titles of the papers and abstracts published, but mentioning every scientific term, about which some notice is contained, or every general scientific fact noticed in the "Journal." Hence we find occasionally fifty and more references made to one essay. The importance of this will be readily noticed on

consulting the Index, as it enables us not only to find the volume and page containing a notice of a certain article, but likewise the substance of such notice as far as it can be expressed in a few words.

The arrangement adopted will greatly facilitate the use of the book, duplications being avoided, if possible, without losing sight of the synonyms, while the system chosen is strictly adhered to. Thus we find under *Acacia* the references to the botanical species of this genus, and the information to seek for the references concerning Gum arabic, Catechu, &c., under the letters *G* and *C*. As a synonym of Acacia, *Mimosa* is likewise noticed. Under the head of *Mercury* are contained only the facts relating to the metal and to the general properties of its compounds; while all special references to the chemical compounds, and particularly to the salts, are found under HYDRARGYRUM, and the pharmaceutical preparations, like Mercurial and Citrine ointments, only under *Unguentum*, the heading of their class. It follows from this statement that notices to the same preparation are not scattered in different places, but are found together in one place, no matter which term or synonym may have been used by the author of the paper.

To further increase the usefulness of this Index to the American pharmacist, copious references have been made to Wood and Bache's Dispensatory of 1869 and to Parrish's Pharmacy, 1867, two books readily accessible to all.

The references under each heading are again systematically grouped together and alphabetically arranged, the chief information contained in the papers being indicated by italics; thus we have under Elemi the following subheadings in italics: *account—analysis—artificial—behavior—from Bengal—oil—resin—solubility*.

The second part, covering 68 pages, is an index of authors, their papers or mere notices of their observations as published in the "Journal" being grouped together under the name of the authors. Though of less importance than the first part, it is nearly as complete as the latter, the credits to American authors being, perhaps, fullest; while no paper has been omitted which had been printed in the usual type among the original and selected matter, also the more important references contained under the headings of Miscellany, Varieties, &c., have been enumerated in this part.

The work as a whole is creditable alike to its author, the printer, and the College which ordered its publication, though by the advance subscriptions less than one-tenth of the final cost had been secured.

Grundlagen der Pharmaceutischen Waarenkunde. Einleitung in das Studium der Pharmacognosie. Von Dr. F. A. Flückiger, Professor an der Universität Strassburg. Berlin, 1873: Julius Springer. 8vo, pp. 138.

Principles of Pharmaceutical Materia Medica. Introduction into the Study of Pharmacognosy.

The microscope has exerted an important influence upon the study of pharmaceutical materia medica, so that during the last two or three decades the more or less vague descriptions of external appearances have gradually disappeared to make room for the by far more important relations of internal struc-

ture; in fact, aside from the morphological relation of the drugs, the structure alone will in the future, probably, furnish the only true *scientific* basis for the correct classification of drugs. The cinchona barks alone are sufficient to demonstrate the necessity of such a system, after the patient and important labors of Weddell, Délondre, Howard, Berg and others, which will doubtless be gradually perfected, since the cultivation of numerous species of cinchona in different parts of the world make it possible now to study the bark of each species during different periods of its growth, instead of the commercial bark, which was hitherto mostly of uncertain origin or an evident mixture of the barks of various species.

Individuals of the same species resemble each other closely in their internal structure, though they may differ widely in regard to their external properties, in consequence of locality of growth or cultivation, exposure to sunlight, moisture, &c., and of terrestrial and climatic conditions generally. This external variation and internal resemblance extend likewise to most morpho. logical parts of plants, under the same conditions which promote or retard the healthy development of the plants, and are further influenced by the treatment which such parts may undergo in their preparation for the market. On the other hand, similar parts of different allied species of plants frequently resemble each other in their physical properties, so that the surest method to distinguish them is ultimately found in their structural differences.

Such considerations determined the practical application of physiological botany to pharmaceutical materia medica, and out of the field of the former, it is particularly phytotomy or vegetable anatomy, and to a certain extent also vegetable physiology, which are of importance to the student of pharmacognosy; and to make these disciplines more accessible to the latter, awaken his interest and induce him to individual researches, are among the nearer objects of the work before us, in its ultimate endeavor at collecting, sifting and moulding into a harmonious whole the investigations and results obtained in those collateral branches which really furnish the foundation upon which the claims of pharmacognosy as a science rest.

The object in view has been attained by the author in a masterly manner, and prominent among the attractive features of his treatise are the simplicity and lucidness of his statements, the clearness of his logical deductions, the admirably executed illustrations, and the interest for his subject which he infuses into the reader.

The scope of the work is shown by the headings of the chapters, which are as follow: Object of pharmacognosy, treatment of the material (mother-plants, geographical distribution, culture, collection, history, &c.), aids of study (cabinets, literature), morphological relations (roots, tubers, bulbs, &c.), internal structure, tissues, intercellular spaces, chemical constitution of cell walls, solid contents, liquid contents of cells, microchemical reagents.

Third and Fourth Annual Reports of the Geological Survey of Indiana, made during the Years 1871 *and* 1872. By E. T. Cox, State Geologist, assisted by Prof. John Collett, Prof. B. C. Hobbs, Prof. R. B. Warder and Dr. G. M. Levette. Indianapolis: R. J. Bright, State Printer, 1872. 8vo, pp. 488, with 4 maps in separate cover.

Geological surveys of districts or entire States are invaluable aids for developing their natural resources; they should, in fact, form the basis of large industrial undertakings, which depend more or less upon a bountiful supply of the raw material, and if properly carried out must necessarily result in opening new fields of enterprise and new lines of communication. The vast coal fields underlying the soil of Indiana must yearly grow in importance, and with the increase of coal mines the mining and manufacturing interests generally will be stimulated.

The combined reports for 1871 and 1872 contain the results of the geological surveys of about 15 counties, for about one-half of which number, however, the surveys are merely preliminary. The arrangement of the material is such as to give a clear picture of the topographical configuration, the geological relations, and the industrial pursuits and resources of the different counties; the numerous analyses of coal and of some ores render the reports the more valuable.

In a report on the Wyandotte cave of Crawford county (of whose galleries about 22 miles are said to have been explored) and its fauna, Prof. E. D. Cope says that it is as well worthy of popular favor as the Mammoth cave. It lacks the large bodies of water which diversify the scene in the latter, but is fully equal to it in the beauty of its stalactites and other ornaments of calcite and gypsum. The stalactites and stalagmites are more numerous than in the Mammoth, and the former frequently have a worm or maccaroni-like form, which is very peculiar. They twist and wind in masses like the locks of Medusa, and often extend in slender runners to a remarkable length. The gypsum rosettes occur in the remote regions of the cave, and are very beautiful. There are also masses of amorphous gypsum of much purity. The floor in many places is covered with curved branches and, what is more beautiful, of perfectly transparent acicular crystals, sometimes mingled with imperfect twin crystals. The loose crystals in one place are in such quantity as to give the name of *snow-banks* to it. In other places it takes the form of japanning of the roof and wall rock. In one respect the cave is superior to the Mammoth—in its vast rooms, with step-like domes, and often huge stalagmites on central hills."

The volume concludes with an essay on the manufacture of spiegeleisen,—specular or glittering iron,—by Hugh Hartmann, Ph. D.

The Sanitarian. A Monthly Journal. A. N. Bell, M.D., Editor. New York, and Chicago: A. Barnes & Co.

The prospectus informs us that the purpose of this publication is to so present the results of the various inquiries which have been and which may hereafter be made for the preservation of health and the expectations of human life, as to make them most advantageous to the public and to the medical profession."

The contents of the first number are as valuable as they are varied, and give promise that a real want will be supplied by the "Sanitarian," and that not only the physician, but all intelligent persons who value the *preservation of health*, will find its pages interesting and instructive. It is published in monthly numbers, of 48 pages, at the subscription price of $3 per annum.

Hygiene. A Fortnightly Journal of Sanitary Science. New York: G. P. Putnam's Sons. 16 pages each. Price $2 per year.

The various subjects are treated in a popular manner and in a pleasant style, giving a summary of hygienic news and observations, and discussing sanitary measures of local and general interest.

Ophthalmic Contributions. By George Strawbridge, M.D., Lecturer on Diseases of the Eye, in the University of Pennsylvania, &c. Philadelphia: Lindsay & Blakiston, 1873. 8vo, pp. 26, with 3 plates.

A reprint, from different medical journals, of three papers by the author, entitled: Dermoid tumor of the cornea; An additional method for the determination of astigmatism; Cyst of the iris, removed by operation.

American Association for the Cure of Inebriates. Proceedings of the Third Meeting, held in New York October 8th, 9th and 10th, 1872. Albany: Printing House of Van Benthuysen & Sons, 1873. 8vo, pp. 127.

Besides the minutes and several essays the volume before us contains reports of the reformatory homes and asylums for the cure of inebriates, located in the States of Massachusetts, New York, Pennsylvania and Maryland; also, a report of Drs. D. G. Dodge and Joseph Parrish, delegates appointed at the request of a special Committee of the British House of Commons to go to England and give their evidence on the treatment of inebriates.

The officers for the current year of this useful Association are: Joseph Parrish, M.D., of Pennsylvania, President; C. J. Hull, of Illinois, and Otis Clapp, of Massachusetts, Vice-Presidents; D. G. Dodge, M.D., of New York, Secretary, and T. L. Mason, M.D., of New York, Treasurer.

The fourth meeting will be held, in the city of New York, on the first Tuesday in October next.

New York State Inebriate Asylum, Binghamton, N. Y. Annual Report of the Superintendent and Physician for the Year 1872. Albany, 1873. 8vo, pp. 62.

The report was transmitted to the State Legislature in Feb., 1873.

Civil Malpractice. A Report presented to the Military Tract Medical Society at its 15th Semi-Annual Meeting, Jan. 14th, 1873. By M. A. McClelland, M.D. Chicago: W. B. Keen, Cook & Co., Publishers. 8vo, pp. 74.

This little volume endeavors to give an account of the principles involved in a number of adjudicated suits for malpractice, and to carry out this object quotes largely from charges and decisions of the courts. A chapter on "negligence and skill from a medical standpoint" concludes this report, which appears to be well worthy the perusal of the physician and surgeon, and to deserve the attention of the lawyer, who may be called upon to act as counsel in cases of so-called malpractice.

Proceedings of the Vermont Pharmaceutical Association at the Third Annual Meeting. Rutland, 1873. 8vo, 32 pages.

The meeting, which was held at Montpelier in October last, seems to have been an interesting and profitable one. Various subjects of interest to the profession were discussed, several essays were read, and the membership was considerably augmented.